Claims

1. A door-closing damper (10), having a stop element (22) guided in an elongated damper body (14) with an open and a closed end (16, 18),

wherein the damper body (14) has a receiving chamber (20) for receiving a sliding element (12), which is connected with the stop element (22),

wherein on its outer contour the sliding element (12) has one or several sliding faces, which rest against an interior wall section (26) of the receiving chamber (20) assigned to the open end (16) of the damper body (14),

wherein a sealing device (34) resting against the inner contour (28) of the receiving chamber (20) is arranged on the end (32) of the sliding element (12) projecting into the receiving chamber (20),

wherein the end (32) of the sliding element (12) projecting into the receiving chamber (20) and the sealing device (34) form a hollow space (36) together with the inner contour (28) of the receiving chamber (20) in which, when the sliding element (12) is charged with pressure, a counter-pressure is exerted on the sliding element (12) because of the air pressure being built up in the hollow space (36), and

wherein, for reducing the air pressure, the hollow space (36) has at least one opening (38a, 38b) for the escape of the air,

characterized in that

a damping member (39a, 39b) works together with the opening (38a, 38b), which constitutes a flow resistance to the air escaping through the opening (38a, 38b).

2. The door-closing damper in accordance with claim 1, characterized in that

the damping member (39a, 39b) has a porous material as the air flow resistance device.

3. The door-closing damper in accordance with claim 1 or 2,

characterized in that

the damping member (39a, 39b) is an element made of a sinter metal, a plastic foam, a textile material, a felt material or such a material providing a resistance to air flow.

4. The door-closing damper in accordance with one of claims 1 to 3,

characterized in that

the opening (38a) is arranged at the closed end (18) of the damper body (14).

5. The door-closing damper in accordance with claim 4, characterized in that

the damping member (39a) can be arranged fitted into a support area (43a) formed on the damper body (14), wherein the entire air flow passes through the damping member (39).

6. The door-closing damper in accordance with one of claims 1 to 5,

characterized in that

the opening (38b) is arranged on the sliding element (12).

7. The door-closing damper in accordance with claim 4, characterized in that

the damping member (39b) can be arranged fitted into a support area (43b) formed on the damper body (14), wherein the entire air flow passes through the damping member (39b).

8. The door-closing damper in accordance with one of claims 1 to 7,

characterized in that

the damping member (39a, 39b) is arranged on the side of the opening (38a, 38b) facing away from the hollow chamber (36).

9. The door-closing damper in accordance with one of claims 1 to 8,

characterized in that

the damping member is arranged on the side of the opening (38a, 38b) facing the hollow chamber (36).

10. The door-closing damper in accordance with one of claims 1 to 9,

characterized in that

the damping member is arranged inside the opening (38a, 38b).

11. The door-closing damper in accordance with one of claims 1 to 10,

characterized in that

the damper body (12) has a spring (42), which is arranged in the receiving chamber (20) and pushes the sliding element (12) at least partially out of the receiving chamber

(20), and against whose spring force the sliding element (12) can be pushed into the receiving chamber (20).

12. The door-closing damper in accordance with one of claims 1 to 11,

characterized in that

the sealing device has at least one elastic sealing lip (34) which, when air pressure is being built up in the hollow space (36) which is formed by the end (32) of the sliding element (12) with the sealing device extending into the receiving chamber (20) and the inner contour (28) of the receiving chamber (20), is pushed against the inner contour (28) of the receiving chamber (20), so that a sliding connection is created which is air-tight to a large extent.

13. The door-closing damper in accordance with claim 12,

characterized in that

the elastic sealing lip (34) is substantially inclined in the direction toward the closed end (18) of the receiving chamber (20), is arranged spaced apart, at least partially, from the outer contour (24) of the sliding element (12) and is arranged at the end (32) of the sliding element (12) extending into the receiving chamber (20).

14. The door-closing damper in accordance with one claim 12 or 13,

characterized in that

because of the underpressure being created in the hollow space (36), the elastic sealing lip (34) of the sealing device in the space (30) between the inner contour

(28) of the receiving chamber (20) and the outer contour (24) of the sliding element (12) is spaced apart from the inner contour (28) of the receiving chamber (20) in the course of the at least partial pull-out of the sliding element (12) from the receiving chamber (20) in such a way that air can flow through the space (30) between the inner contour (28) of the receiving chamber (20) and the outer contour (24) of the sliding element (12) past the sealing lip (34) into the hollow space (36).

15. The door-closing damper in accordance with one of claims 1 to 14,

characterized in that

at least one protrusion (50) is formed on the inner wall section of the receiving chamber (20) associated with the open end (16) of the damper body (14), which is in contact with the sliding face(s) of the sliding element (12).

16. The door-closing damper in accordance with claim 15,

characterized in that

at least one protrusion (52) is formed on the sliding element (12) between the outer contour (24) of the same and the inner contour (28) of the receiving chamber (20) which, in the course of the at least partial pull-out of the sliding element (12) out of the receiving chamber (20), strikes the protrusion (50) formed on the inner wall section of the receiving chamber (20) associated with the open end (16) of the damper body (14).

17. The door-closing damper in accordance with one of

claims 1 to 16,

characterized in that

the damper body (14) can be inserted into a blind bore (58) in a receiver body (54),

the damper body (14) has a shoulder (60), which encircles it at least partially, on its outer contour (24) associated with its open end (16), which limits the insertion depth of the damper body (14) in the blind bore (58).

18. The door-closing damper in accordance with one of claims 1 to 17,

characterized in that

the sliding body (12) has an elongated recess (44) which, at least partially, extends substantially in the direction of its longitudinal extension and is arranged at its end associated with the closed end (18) of the receiving chamber (20), into which the spring (42) arranged in the receiving chamber (20) extends.

19. The door-closing damper in accordance with claim 18,

characterized in that

a pin (46), which extends in the longitudinal extension direction of the receiving chamber (20), has been formed on the inner contour of the closed end (18) of the receiving chamber (20) which, in the completely pushed-in state of the sliding element (12), extends substantially completely into its recess (44) which runs in the direction of the longitudinal extension.

20. The door-closing damper in accordance with claim

19,

characterized in that

the spring (42) arranged in the receiving chamber (20) can be conducted over the pin (46) and movably arranged on the outer contour of the latter,

and that a space (48) is formed between the pin (46) and the recess (44) extending in the longitudinal extension direction in the sliding element (12) in such a way, that the spring (42) is movably arranged on the inner contour of the recess.

21. The door-closing damper in accordance with claim 20,

characterized in that,

with the sliding element (12) substantially completely pushed-in, the spring (42) is squared away in the space (48) between the pin (46) and the recess (44).

22. The door-closing damper in accordance with one of claims 1 to 21,

characterized in that

the stop element (22) has a detent head (23) which projects at least partially over the edge area (17) of the opening at the open end (16) of the damper body (14) and which, with the substantially completely pushed-in sliding element (12), is stopped on the edge area (17).

23. The door-closing damper in accordance with one of claims 1 to 22,

characterized in that

the sliding element (12) is embodied in one piece with

the sealing device (34).

24. The door-closing damper in accordance with one of claims 1 to 23,

characterized in that

the stop element has a magnetic snap-in arrangement or the like contact device for the releasable connection of the door-closing damper with a connecting element.

25. A door-closing damper (10), having a stop element (22) guided in an elongated damper body (14) with an open and a closed end (16, 18),

wherein the damper body (14) has a receiving chamber (20) for receiving a sliding element (12), which is connected with the stop element (22),

wherein on its outer contour the sliding element (12) has one or several sliding faces, which rest against an interior wall section (26) of the receiving chamber (20) assigned to the open end (16) of the damper body (14),

wherein a sealing device (34) resting against the inner contour (28) of the receiving chamber (20) is arranged in the area of the end of the sliding element (12) projecting into the receiving chamber (20),

wherein the end (32) of the sliding element (12) projecting into the receiving chamber (20) and the sealing device (34) form a hollow space (36) together with the inner contour (28) of the receiving chamber (20) in which, when the sliding element (12) is charged with pressure, a counter-pressure is exerted on the sliding element (12) because of the air pressure being built up in the hollow space (36), and

wherein, for reducing the air pressure, the hollow

space (36) has at least one opening (38a, 38b) for the escape of the air,

characterized in that

the opening a diameter D < 0.2 mm, preferably the ratio of the cross-sectional surface of the sliding element (12) embodied as a piston in the area facing the hollow chamber (36) and of the opening cross section of the opening (38a, 38b) is greater than 4000/1/.

26. The door-closing damper in accordance with claim 25,

characterized in that

the diameter of the opening (38a, 38b) is less than 0.1 mm.

27. The door-closing damper in accordance with claim 24 or 25, characterized by one of claims 2 to 23.

New claims 1 to 26

(replace original claims 1 to 27)

1. A door-closing damper (10), having a stop element (22) guided in an elongated damper body (14) with an open and a closed end (16, 18), wherein the damper body (14) has a receiving chamber (20) for receiving a sliding element (12), which is connected with the stop element (22), wherein on its outer contour the sliding element (12) has one or several sliding faces, which rest against an interior wall section (26) of the receiving chamber (20) assigned to the open end (16) of the damper body (14), wherein a sealing device (34) resting against the inner contour (28) of the receiving chamber (20) is arranged on the end (32) of the sliding element (12) projecting into the receiving chamber (20), wherein the end (32) of the sliding element (12) projecting into the receiving chamber (20) and the sealing device (34) form a hollow space (36) together with the inner contour (28) of the receiving chamber (20) in which, when the sliding element (12) is charged with pressure, a counter-pressure is exerted on the sliding element (12) because of the air pressure being built up in the hollow space (36), and wherein, for reducing the air pressure, the hollow space (36) has at least one opening (38a, 38b) for the escape of the air, and wherein a damping member (39a, 39b) works together with the opening (38a, 38b), which constitutes a flow resistance to the air escaping through the opening (38a, 38b),

characterized in that

the sealing device has at least one elastic sealing lip

(34) which, when air pressure is being built up in the hollow space (36) which is formed by the end (32) of the sliding element (12) with the sealing device extending into the receiving chamber (20) and the inner contour (28) of the receiving chamber (20), is pushed against the inner contour (28) of the receiving chamber (20), so that a sliding connection is created which is air-tight to a large extent.

2. The door-closing damper in accordance with claim 1, characterized in that

the damping member (39a, 39b) has a porous material as the air flow resistance device.

3. The door-closing damper in accordance with claim 1 or 2,

characterized in that

the damping member (39a, 39b) is an element made of a sinter metal, a plastic foam, a textile material, a felt material or such a material providing a resistance to air flow.

4. The door-closing damper in accordance with one of claims 1 to 3,

characterized in that

the opening (38a) is arranged at the closed end (18) of the damper body (14).

5. The door-closing damper in accordance with claim 4, characterized in that

the damping member (39a) can be arranged fitted into a support area (43a) formed on the damper body (14), wherein the entire air flow passes through the damping member (39).

6. The door-closing damper in accordance with one of

claims 1 to 5,

characterized in that

the opening (38b) is arranged on the sliding element (12).

7. The door-closing damper in accordance with claim 4,

characterized in that

the damping member (39b) can be arranged fitted into a support area (43b) formed on the damper body (14), wherein the entire air flow passes through the damping member (39b).

8. The door-closing damper in accordance with one of claims 1 to 7,

characterized in that

the damping member (39a, 39b) is arranged on the side of the opening (38a, 38b) facing away from the hollow chamber (36).

9. The door-closing damper in accordance with one of claims 1 to 8,

characterized in that

the damping member is arranged on the side of the opening (38a, 38b) facing the hollow chamber (36).

10. The door-closing damper in accordance with one of claims 1 to 9,

characterized in that

the damping member is arranged inside the opening (38a, 38b).

11. The door-closing damper in accordance with one of claims 1 to 10,

characterized in that

the damper body (12) has a spring (42), which is

arranged in the receiving chamber (20) and pushes the sliding element (12) at least partially out of the receiving chamber (20), and against whose spring force the sliding element (12) can be pushed into the receiving chamber (20).

12. The door-closing damper in accordance with one of claims 1 to 11,

characterized in that

the elastic sealing lip (34) is substantially inclined in the direction toward the closed end (18) of the receiving chamber (20), is arranged spaced apart, at least partially, from the outer contour (24) of the sliding element (12) and is arranged at the end (32) of the sliding element (12) extending into the receiving chamber (20).

13. The door-closing damper in accordance with one of claims 1 to 12,

characterized in that

because of the underpressure being created in the hollow space (36), the elastic sealing lip (34) of the sealing device in the space (30) between the inner contour (28) of the receiving chamber (20) and the outer contour (24) of the sliding element (12) is spaced apart from the inner contour (28) of the receiving chamber (20) in the course of the at least partial pull-out of the sliding element (12) from the receiving chamber (20) in such a way that air can flow through the space (30) between the inner contour (28) of the receiving chamber (20) and the outer contour (24) of the sliding element (12) past the sealing lip (34) into the hollow space (36).

14. The door-closing damper in accordance with one of claims 1 to 13,

characterized in that

at least one protrusion (50) is formed on the inner wall section of the receiving chamber (20) associated with the open end (16) of the damper body (14), which is in contact with the sliding face(s) of the sliding element (12).

15. The door-closing damper in accordance with claim 14,

characterized in that

at least one protrusion (52) is formed on the sliding element (12) between the outer contour (24) of the same and the inner contour (28) of the receiving chamber (20) which, in the course of the at least partial pull-out of the sliding element (12) out of the receiving chamber (20), strikes the protrusion (50) formed on the inner wall section of the receiving chamber (20) associated with the open end (16) of the damper body (14).

16. The door-closing damper in accordance with one of claims 1 to 15,

characterized in that

the damper body (14) can be inserted into a blind bore (58) in a receiver body (54),

the damper body (14) has a shoulder (60), which encircles it at least partially, on its outer contour (24) associated with its open end (16), which limits the insertion depth of the damper body (14) in the blind bore (58).

17. The door-closing damper in accordance with one of claims 1 to 16,

characterized in that

the sliding body (12) has an elongated recess (44) which, at least partially, extends substantially in the direction of its longitudinal extension and is arranged at its end associated with the closed end (18) of the receiving

chamber (20), into which the spring (42) arranged in the receiving chamber (20) extends.

18. The door-closing damper in accordance with claim 17,

characterized in that

a pin (46), which extends in the longitudinal extension direction of the receiving chamber (20), has been formed on the inner contour of the closed end (18) of the receiving chamber (20) which, in the completely pushed-in state of the sliding element (12), extends substantially completely into its recess (44) which runs in the direction of the longitudinal extension.

19. The door-closing damper in accordance with claim 18,

characterized in that

the spring (42) arranged in the receiving chamber (20) can be conducted over the pin (46) and movably arranged on the outer contour of the latter,

and that a space (48) is formed between the pin (46) and the recess (44) extending in the longitudinal extension direction in the sliding element (12) in such a way, that the spring (42) is movably arranged on the inner contour of the recess.

20. The door-closing damper in accordance with claim 19,

characterized in that,

with the sliding element (12) substantially completely pushed-in, the spring (42) is squared away in the space (48) between the pin (46) and the recess (44).

21. The door-closing damper in accordance with one of

claims 1 to 20,

characterized in that

the stop element (22) has a detent head (23) which projects at least partially over the edge area (17) of the opening at the open end (16) of the damper body (14) and which, with the substantially completely pushed-in sliding element (12), is stopped on the edge area (17).

22. The door-closing damper in accordance with one of claims 1 to 21,

characterized in that

the sliding element (12) is embodied in one piece with the sealing device (34).

23. The door-closing damper in accordance with one of claims 1 to 22,

characterized in that

the stop element has a magnetic snap-in arrangement or the like contact device for the releasable connection of the door-closing damper with a connecting element.

24. A door-closing damper (10), having a stop element (22) guided in an elongated damper body (14) with an open and a closed end (16, 18), wherein the damper body (14) has a receiving chamber (20) for receiving a sliding element (12), which is connected with the stop element (22), wherein on its outer contour the sliding element (12) has one or several sliding faces, which rest against an interior wall section (26) of the receiving chamber (20) assigned to the open end (16) of the damper body (14), wherein a sealing device (34) resting against the inner contour (28) of the receiving chamber (20) is arranged in the area of the end of the sliding element (12) projecting into the receiving chamber (20), wherein the end (32) of the sliding element (12)

projecting into the receiving chamber (20) and the sealing device (34) form a hollow space (36) together with the inner contour (28) of the receiving chamber (20) in which, when the sliding element (12) is charged with pressure, a counter-pressure is exerted on the sliding element (12) because of the air pressure being built up in the hollow space (36), and wherein, for reducing the air pressure, the hollow space (36) has at least one opening (38a, 38b) for the escape of the air,

characterized in that

the opening has a diameter D < 0.2 mm, and/or that preferably the ratio of the cross-sectional surface of the sliding element (12) embodied as a piston in the area facing the hollow chamber (36) and of the opening cross section of the opening (38a, 38b) is greater than 4000/1.

26. The door-closing damper in accordance with claim 25,

characterized in that

the diameter of the opening (38a, 38b) is less than 0.1 mm.

27. The door-closing damper in accordance with claim 24 or 25, characterized by one of claims 2 to 23.